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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/913,613	08/15/2001	Jorg Vorkort	VORTKORTETAL	2511
25889	7590	10/23/2003	EXAMINER	
WILLIAM COLLARD COLLARD & ROE, P.C. 1077 NORTHERN BOULEVARD ROSLYN, NY 11576			CHEUNG, WILLIAM K	
			ART UNIT	PAPER NUMBER
			1713	9
DATE MAILED: 10/23/2003				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/913,613

Applicant(s)

VORTKORT ET AL.

Examiner

William K Cheung

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 23 and 28-38 is/are allowed.
- 6) ☒ Claim(s) 21, 22, 24-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 21-38 are pending.
2. In view of Amendment (Paper No. 8) filed September 29, 2003, the objection of claims 22-28, 30-38 due to minor informalities is withdrawn. Further, the rejection of claims 21-38 are rejected under 35 U.S.C. 112, second paragraph, is withdrawn.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1713

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 21, 22, 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ouhadi et al. (US 5,843,577).

*The invention of claims 21, 22, 24-27 relates to a **thermoplastic vulcanizate** of four components (A, B, C, D), comprising*

- *a **thermoplastic synthetic resin (A)**;*
- *a substantially **non-cross-linked polyethylene (B)**;*
- *a **rubber (C)** having a degree of **cross-linking of > 90%**; and*
- *a **plasticizer (D)**;*

*as well as of **standard blend ingredients (E)** comprising at least one **cross-linking agent or cross-linking system**, whereby a mixture is comprised of the following quantitative proportions (in % by weight) based on the sum of the four components (A, B, C, D):*

<i>thermoplastic synthetic resin (A)</i>	<i>5 to 20 wt%</i>
<i>polyethylene (B)</i>	<i>(25 to 5) or (15 to 5) wt%</i>
<i>rubber (C)</i>	<i>30 to 50 wt%</i>
<i>plasticizer (D)</i>	<i>(40 to 25) or (50 to 25) wt%</i>

According to applicants' specification (page 6, 2nd paragraph), a **thermoplastic synthetic resin (A)** is any desired thermoplastics such as polystyrene, polyamide, polyester or polypropylene in the form of plastic mixture, among others. The plastic preferably is a homo-, block polymers, or copolymers of polypropylene.

According to applicants' specification (page 6, line 20 to page 7, line 3), the substantially **non-crosslinked polyethylene** is preferably a VLDPE with a density of 0.88 to 0.91 g/cm³ at 20 °C and/or a ULDPE with density of 0.85 to 0.88 g/cm³ at 20 °C.

According to applicants' specification (page 7, paragraphs 3 to 5), a **rubber (C)** is defined to be various types of rubber which includes natural rubber, butyl rubber, styrene-butadiene rubber, nitrile rubber, or EPDM.

According to applicants' specification (page 8, 2nd paragraph), a **plasticizer (D)** is any desired suitable plasticizer for extending the rubber which includes paraffinic or naphthalic oils for extending EPDM.

Ouhadi et al. (col. 13, claims 1, 5) disclose a composition comprises 100 parts by weight of thermoplastic elastomer which has been fully cured (col. 13, claim 5) which is equivalent to applicants rubber (C) that is crosslinked > 90% and 3 to about 60 parts by

Art Unit: 1713

weight of a modifier comprising a copolymer 10 to 90 weight percent of a functionalized polyolefin with about 90 to 10 weight percent of a polyamide which can be viewed as applicants' "thermoplastic synthetic resin (A). Ouhadi et al. (col. 4, line 1-8) disclose olefinic rubber such as ethylene propylene-diene rubber (EPDM) with non-conjugated diene such as 5-ethylidene-2-norbornene is suitable rubber for the disclosed composition. For achieving crosslinks, Ouhadi et al. (col. 8, line 7-11) further disclose that adding an appropriate rubber curative to the blend of polyolefin and rubber and vulcanizing the rubber to the desired degree under conventional vulcanizing conditions.

Regarding the claimed substantially non-crosslinked polyethylene (B), Ouhadi et al. (col. 13, line 16-24) clearly state that polyolefin selected from the group consisting of polymers of ethylene, propylene, 1-butene, 1-hexene, 4-methyl-1-pentene, and copolymers of ethylene with one or more alpha-olefins are suitable for the disclosed composition. Further, Ouhadi et al. (col. 3, line 44-47) also disclose that high, low, linear-low, or very low density polyethylene could be used. Since very low density polyethylene by definition has density of 0.88 to 0.91 g/cm³, the examiner has a reasonable basis to believe that the claimed density of from 0.88 to 0.91 g/cm³ is inherently possessed by the disclosure to Ouhadi et al.

Regarding the claimed plasticizer (D), Ouhadi et al. (col. 5, line 44-61) clearly teach using plasticizers (such as paraffinic, naphthenic, or aromatic oils) as processing aids for the disclosed composition. Therefore, it would not be difficult for one of ordinary

skill in art to use the teachings in Ouhadi et al. to obtain the composition invention of claims 21, 22, 24-27.

Regarding the claimed “thermoplastic vulcanizate” of applicants’ claim 21 (line 1), in view of the substantially identical composition disclosed and being claimed, the examiner has a reasonable basis to believe that the recited “thermoplastic vulcanizate” is inherently possessed by the disclosure to Ouhadi et al. Further, applicants must recognize that the recited “thermoplastic vulcanizate” is merely a functional language that does not lend itself to patentability.

Further, in view of the substantially identical fully cured thermoplastic elastomer (col. 13, claim 5), the examiner has a reasonable basis to believe that the claimed > 90% crosslinked is inherently possessed by the disclosure to Ouhadi et al. Further, in view of the substantially identical fully cured thermoplastic elastomer (col. 13, claim 5), the examiner also has a reasonable basis to believe that the recited “being compatible with the thermoplastic synthetic resin (A) in regard to the phase inversion” is inherently possessed by the disclosure to Ouhadi et al. Since the PTO does not have proper means to conduct experiments, the burden of proof is now shifted to applicants to show otherwise. In re Best, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977); In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

Further, regarding the minor differences in processing conditions as claimed in claims 21, 22, 24-27, applicants must recognize that “[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” In re Thorpe, 777F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)

Allowances

6. Claims 23, 28-38 are allowed.

7. The following is an examiner’s statement of reasons for allowance:

As of the date of this office action, the examiner has not located or identified any reference that can be used singularly or in combination with another reference including the closest prior art of Ouhadi et al. (US 5,843,577) to render the present invention anticipated or obvious to one of ordinary skill in the art.

*The invention of claim 23 relates to the **thermoplastic vulcanizate** of claim 21 where the thermoplastic synthetic resin (A) is a **polypropylene based homopolymer, block polymer or copolymer in conjunction with high crystallinity.***

*The invention of claims 28-38 relates to a method for making a **thermoplastic vulcanizate** comprises of four components (A, B, C, D), notably*

- *a thermoplastic synthetic resin (A);*
- *a substantially non-cross-linked polyethylene (B);*
- *a rubber (C) having a degree of cross-linking of > 90% and being compatible with the thermoplastic synthetic resin (A) in regard to the phase inversion; and*
- *a plasticizer (D);*

*as well as of the **standard blend ingredients (E)** comprising at least one cross-linking agent or cross-linking system, whereby the mixture is comprised of the following quantitative proportions (in % by weight) based on the sum of the four components (A, B, C, D):*

<i>Thermoplastic synthetic resin (A)</i>	<i>5 to 20 wt%</i>
<i>Polyethylene (B)</i>	<i>(25 to 5) or (15 to 5) wt%</i>
<i>Rubber (C)</i>	<i>30 to 50 wt%</i>
<i>Plasticizer (D)</i>	<i>(40 to 25) or (50 to 25) wt%</i>

wherein the rubber (C) in the still-unvulcanized state is first mixed with a plasticizer (D) and the standard blend ingredients (E) in a roll or screw extender, whereby the standard blend ingredients still do not yet contain a crosslinking agent or crosslinking system.

Art Unit: 1713

The closest prior art Ouhadi et al. (col. 13, claims 1, 5) disclose a process for preparing a composition comprises 100 parts by weight of thermoplastic elastomer which has been fully cured which is equivalent to applicants rubber (C) (col. 13, claim 5), and 3 to about 60 parts by weight of a modifier comprising a copolymer 10 to 90 weight percent of a functionalized polyolefin with about 90 to 10 weight percent of a polyamide which can be view as applicants "thermoplastic synthetic resin (A). However, Ouhadi et al. are completely silent on a process which includes a step of adding a standard blend ingredients (E) comprising at least one cross-linking agent or cross-linking system. Therefore, it would not be apparent to one of ordinary skill in art to use the process teachings of Ouhadi et al. to obtain the process invention of claims 21-38. The invention of claims 21-38 is allowed.

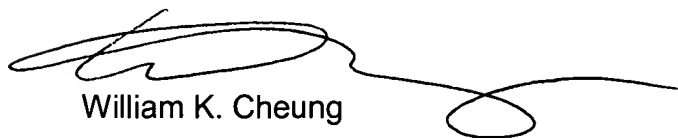
Regarding claim 23, the closest prior art Ouhadi et al. are silent on composition comprising a polypropylene based homopolymer, block polymer or copolymer in conjunction with high crystallinity. Therefore, it would not be apparent to one of ordinary skill in art to use the composition teachings in Ouhadi et al. to obtain the composition invention of claim 23.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William K Cheung whose telephone number is (703) 305-0392. The examiner can normally be reached on Monday-Friday 9:00AM to 2:00PM; 4:00PM to 8:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (703) 308-2450. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-5885 for regular communications and (703) 305-5885 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

A handwritten signature in black ink, appearing to read 'William K. Cheung', with a long, sweeping horizontal line extending to the right.

William K. Cheung

Patent Examiner

October 15, 2003